

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of the Claims:

1. (Original) A phoretic cell comprising a liquid crystal cell having a liquid crystal material and a phoretic particle therein, the phoretic particle being moveable from a first preferred position at a first side of the liquid crystal cell to a second side of the liquid crystal cell on application of a field, the liquid crystal cell being adapted such that, when the phoretic particle is not located at the first preferred position, there is a defect associated with the first preferred position and the liquid crystal defect energy of said defect is lower when the phoretic particle is located substantially at the first preferred position within the liquid crystal cell than when the phoretic particle is not so located.
2. (Original) A phoretic cell according to claim 1 wherein the applied field must exceed a threshold level to move the phoretic particle from the first preferred position to the second side of the liquid crystal cell.
3. (Currently amended) A phoretic cell according to claim ~~1~~ or 2 wherein the phoretic particle is moveable reversibly from a second preferred position at the second side of the liquid crystal cell to the first preferred position at the first side of the liquid crystal cell on application of a field, the liquid crystal cell being adapted such that, when the phoretic particle is not located at the second preferred position, there is a defect associated with the second preferred position and the liquid crystal defect energy of said defect is lower when the phoretic particle is located substantially at the second preferred position within the liquid crystal cell than when the phoretic particle is not so located.
4. (Original) A phoretic cell according to claim 3 wherein the applied field must exceed a threshold level to move the phoretic particle from the second preferred position to the first preferred position within the liquid crystal cell.

5. (Original) A phoretic cell according to claim 4 wherein the magnitude of the threshold level associated with moving the phoretic particle from the first preferred position to the second preferred position within the liquid crystal cell is different to that for moving the phoretic particle from the second preferred position to the first preferred position within the liquid crystal cell.
6. (Currently amended) A phoretic cell according to ~~any of claims 1-5~~ 1 having a plurality of first preferred positions at the first side of the liquid crystal cell, each first preferred position having a defect associated therewith, and a plurality of phoretic particles dispersed within the liquid crystal material.
7. (Currently amended) A phoretic cell according to ~~claim 6 when dependent on claim 3~~ having a plurality of first preferred positions at the first side of the liquid crystal cell, each first preferred position having a defect associated therewith, and a plurality of second preferred positions at the second side of the liquid crystal cell, each second preferred position having a defect associated therewith, and a plurality of phoretic particles dispersed within the liquid crystal material.
8. (Currently amended) A phoretic cell according to claim 6 ~~or 7~~ wherein at least one internal surface of the liquid crystal cell is profiled so as to induce said defects.
9. (Original) A phoretic cell according to claim 8 wherein the profile comprises a plurality of indentations arranged in an array.
- 10-18. (Cancelled)
19. (Currently amended) A phoretic cell according to any of claims 3 ~~—5~~ wherein the liquid crystal cell comprises a liquid crystal droplet.
20. (Currently amended) A phoretic cell according to claim 19 wherein the phoretic cell comprises a plurality of liquid crystal cells.

21-22. (Cancelled)

23. (Currently amended) A phoretic cell according to ~~any of the preceding claims 1~~ wherein the ~~or each~~ liquid crystal cell includes a dye.

24-25. (Cancelled)

26. (Currently amended) A phoretic cell according to ~~any of the preceding claims 1~~ wherein the ~~or each~~ phoretic particle is adapted to reflect electromagnetic radiation incident thereon.

27-34. (Cancelled)

35. (Currently amended) A method for fabricating a phoretic cell as claimed in ~~any of claims 6 —18, or any of claims 23 —33 when dependent on any of claims 6 —18~~, having a plurality of phoretic particles suspended within a liquid crystal suspension medium, comprising the steps of

- (i) preparing a first substrate having a first relief structure alignment layer adapted to interact with the liquid crystal suspension medium to provide a preferred alignment of the liquid crystal director within the phoretic cell,
- (ii) forming a plurality of indentations within the relief structure alignment layer, each indentation having an internal surface extending from a relief structure surface of the relief structure alignment layer,
- (iii) depositing the phoretic particles onto the first relief structure surface,
- (iv) incorporating the liquid crystal suspension medium into the cell.

36. (Original) A method for fabricating a phoretic cell according to claim 35 comprising the steps of

- (v) preparing a second substrate having a second relief structure alignment layer adapted to interact with the liquid crystal suspension medium to provide a preferred alignment of the liquid crystal director within the phoretic cell,
- (vi) forming a plurality of indentations within the second relief structure alignment layer, each indentation having an internal surface extending from a relief structure surface of the second relief structure alignment layer,
- (vii) arranging the second substrate remotely to the first substrate such that the relief structure alignment layer thereof interacts with the liquid crystal suspension medium to provide a preferred alignment of the liquid crystal director within the phoretic display.

37 (Original) A method according to claim 36 comprising the step of arranging each indentation in the relief structure surface of the first relief structure alignment layer substantially opposite a corresponding indentation in the relief structure surface of the second relief structure alignment layer, said indentations forming an opposing pair of indentations.

38. (Original) A method according to claim 37 comprising the step of arranging a phoretic particle within each opposing pair of indentations.

39. (Cancelled)

40. (Cancelled)

41. (Currently amended) A display having a first display surface for displaying an image, comprising a phoretic cell as claimed in ~~any of~~ claims 1 –33, wherein the phoretic cell is arranged within the display such that the or each first preferred position within the liquid crystal cell is located substantially at the first display surface, the display being operable by the application of a field across the display.

42. (Currently amended) A display according to claim 41 having a second display surface disposed remotely to the first display surface, ~~comprising a phoretic cell as claimed in claim 2 or any of claims 3-33 when dependent on claim 2,~~

wherein the phoretic cell is arranged within the display such that ~~the or each~~ a second preferred position within the liquid crystal cell is located substantially at the second display surface, and

the first and second preferred positions are such that the ~~or each~~ phoretic particle is visible at a display surface when located at one preferred position and is not visible at said display surface when located at the other preferred position.

43. (Currently amended) A display according to claim 42 having a phoretic cell comprising a plurality of liquid crystal cells, each liquid crystal cell comprising a liquid droplet, comprising ~~a phoretic cell as claimed in claim 20 or any of claims 21-33 when dependent on claim 20,~~ wherein the liquid crystal droplets are disposed within an encapsulant.

44-51. (Cancelled)

52. (Currently amended) A method of fabricating a display as claimed in ~~any of claims 41-50~~ comprising the steps of

- (i) dispersing a plurality of liquid crystal cells as described in claim 19 ~~or any of claims 20-33 when dependent on claim 19,~~ into a curable encapsulant,
- (ii) aligning the liquid crystal cells into a preferred alignment, and
- (iii) curing the encapsulant to retain the liquid crystal cells therein.

53. (Original) A method of fabricating a display according to claim 52 further comprising the step of applying the dispersion of liquid crystal cells and curable encapsulant onto a substrate.

54. (Original) A method of fabricating a display according to claim 53 wherein the step of

aligning the liquid crystal cells into a preferred alignment is performed after the encapsulant has been cured and comprises the step of expanding the cured encapsulant in a direction substantially perpendicular to the substrate, thereby elongating the liquid crystal cells dispersed therein in a direction substantially perpendicular to the substrate.

55. (Original) A method of fabricating a display according to claim 54 wherein the step of expanding the cured encapsulant comprises introducing a material into the cured encapsulant so as to cause the cured encapsulant to swell.

56. (Original) A method of fabricating a display according to claim 53 comprising the intermediate steps of reversibly deforming the substrate in the plane of the substrate prior to curing the encapsulant and subsequently returning the substrate to its undeformed state after curing the encapsulant, so as to perform the step of aligning the liquid crystal cells, such that the cured encapsulant and the liquid crystal cells dispersed therein are compressed in a plane parallel with that of the substrate.

57. (Original) A method of fabricating a display according to claim 56 wherein the step of reversibly deforming the substrate comprises at least one of heating and stretching the substrate.